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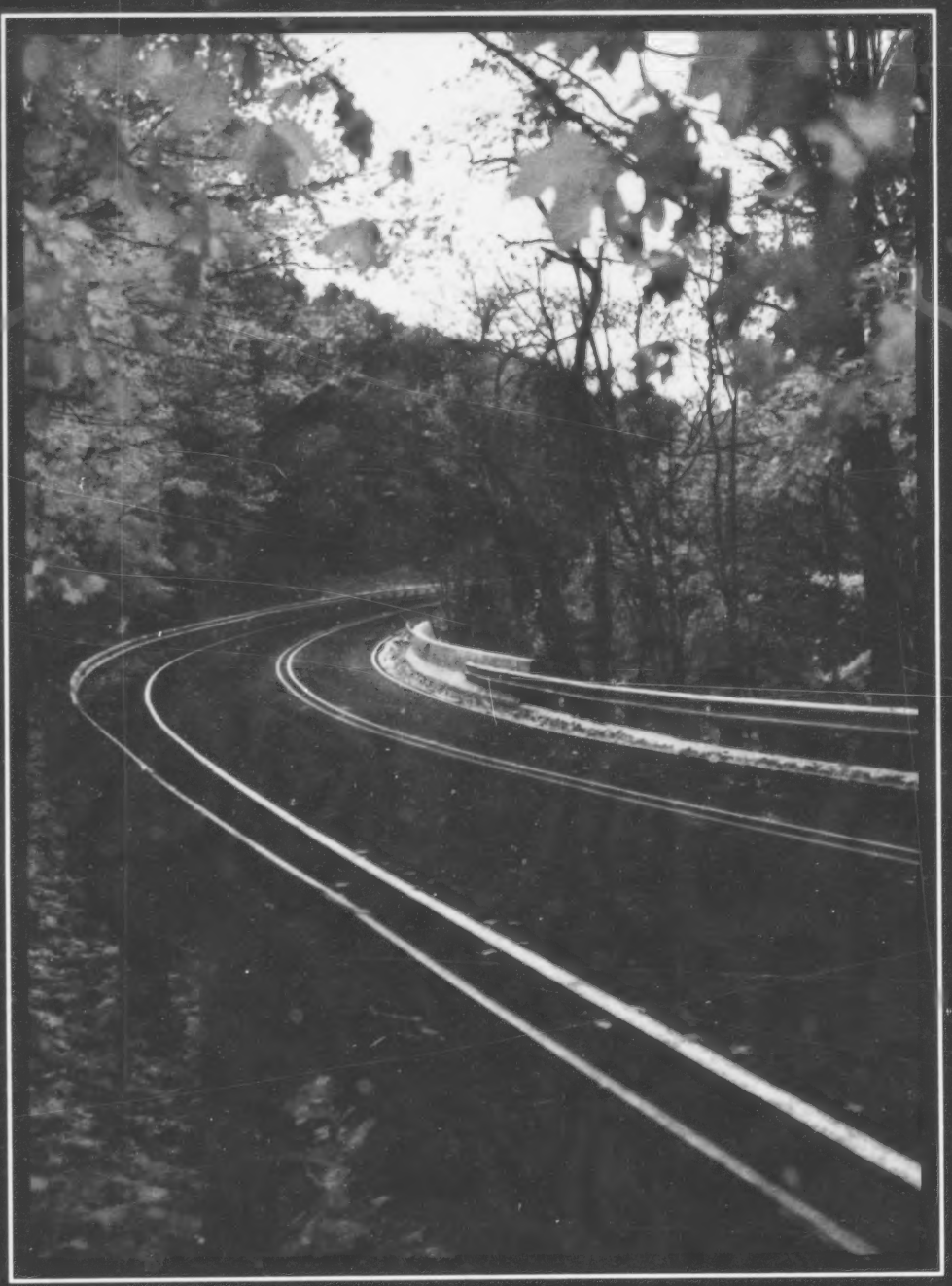
EXCELLENCE IN HIGHWAY DESIGN



1990 BIENNIAL AWARDS

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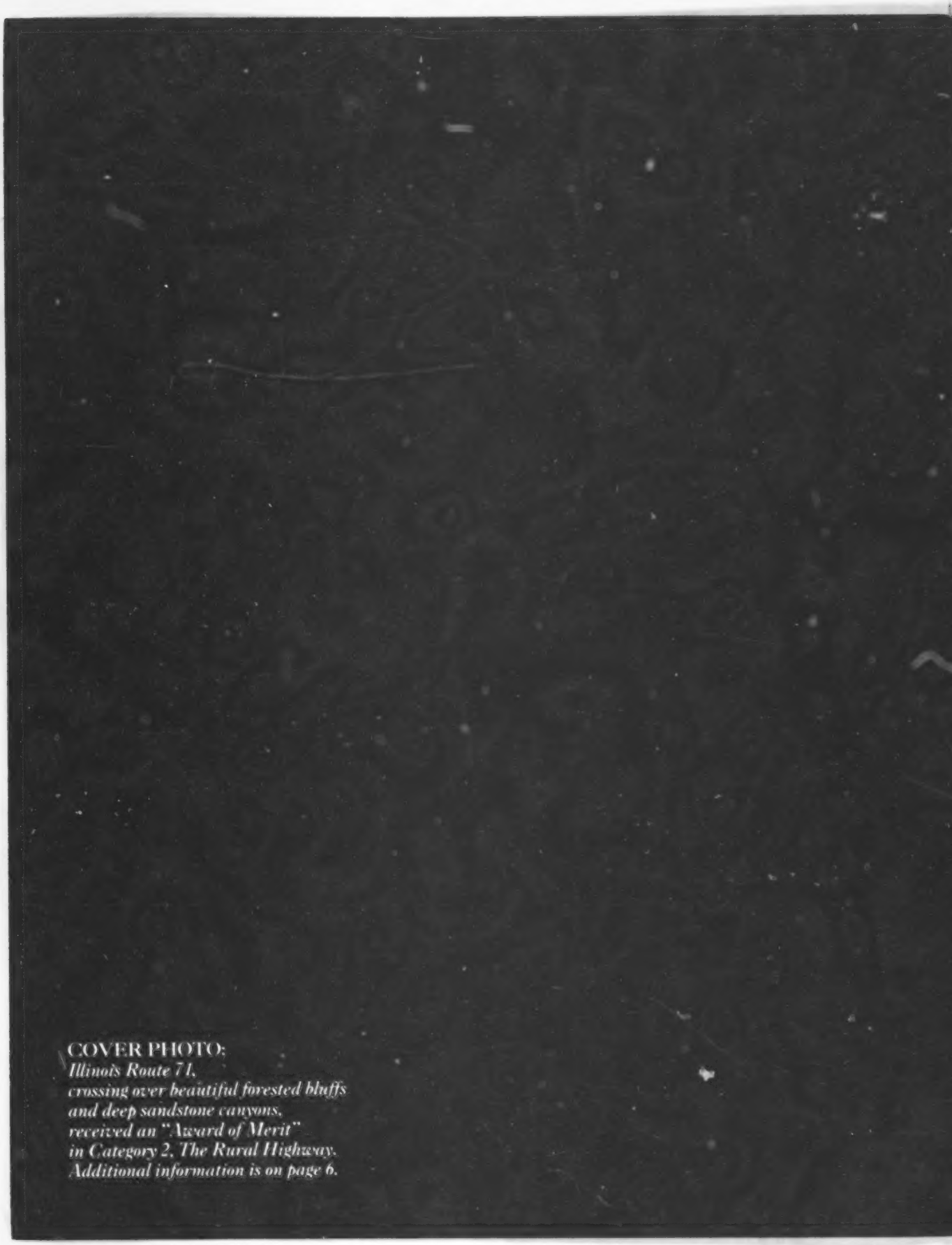
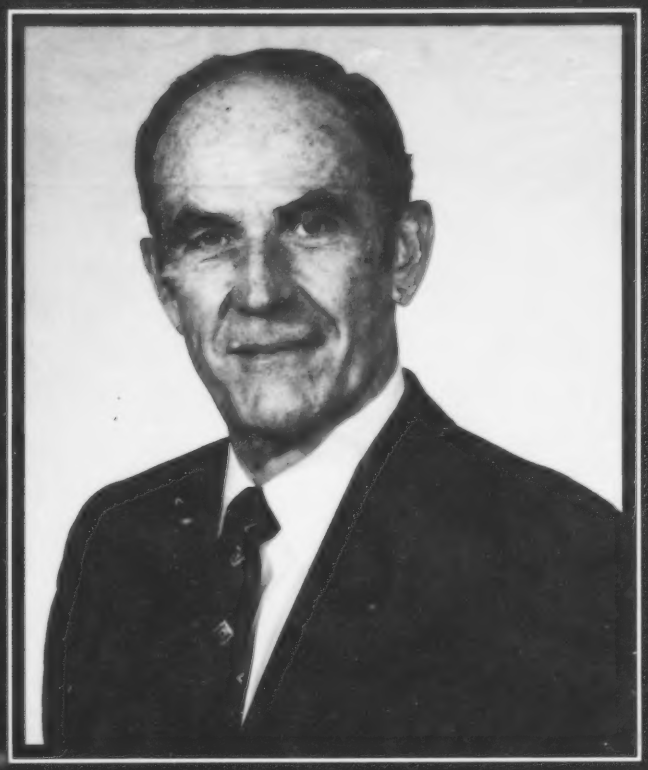


COVER PHOTO:
Illinois Route 71,
crossing over beautiful forested bluffs
and deep sandstone canyons,
received an "Award of Merit"
in Category 2, The Rural Highway.
Additional information is on page 6.



"As the Federal Highway Administration once more honors 'Excellence in Highway Design' from all across America, it is especially appropriate that we are doing so in the same year that President George Bush and Secretary Sam Skinner announced the National Transportation Policy (NTP) for moving America into the 21st century. The projects highlighted in this year's awards underscore the essence of the NTP. They are innovative, environmentally sensitive, and people conscious. In short, these creative, award-winning designs epitomize the very best highway technology which will assure America's future."

Thomas A. Larson
Federal Highway Administrator

INTRODUCTION

The biggest obstacle facing our pioneer founders in road construction was leveling the trees in their path. Today the design and construction of our Nation's highways depend on many factors: environmental impact, safety, functional efficiency, and aesthetic considerations such as visual appeal and pleasing highway experience.

The primary responsibility of the Federal Highway Administration (FHWA) is to assist the States in developing their major highway systems. To promote and recognize a commitment to excellence in design of highways and highway-related facilities, FHWA has held the "Excellence in Highway Design" biennial awards competition for over a decade. This brochure presents the winners from the 1990 competition, chosen from over 200 entries.

AWARD OF EXCELLENCE

TENNESSEE DEPARTMENT OF TRANSPORTATION

SPECIFIC CRITERIA:

- Enhancement of the Transportation System
- Relationship to Surroundings
- Alignment and Design

Listening to the concerns of citizens, the Tennessee Department of Transportation designed this segment of I-440 to cut almost undetected through a residential area of Nashville. Native rock was used to cover retaining walls, and noise walls were constructed to be visually appealing as well as functional. Extensive landscaping and color-textured concrete shoulders enhance the natural appearance of the project.

CATEGORY 1

The Urban Highway

State and Local Projects

AWARD OF MERIT

ARIZONA DEPARTMENT OF TRANSPORTATION

The Papago I-10 segment between 7th and 18th Streets in Phoenix, Arizona, is one of the final portions of the coast-to-coast I-10 freeway. Walls decorated with designs derived from Native American art, landscaping, pedestrian bridges, and structural design resulted in a facility that serves the urban area while expressing the unique southwestern character of Phoenix.

AWARD OF MERIT

MINNESOTA DEPARTMENT OF TRANSPORTATION

The design and construction of this segment of I-35E in downtown Saint Paul, Minnesota, projects a strong sense of visual and physical continuity while gracefully blending into adjacent neighborhoods. A lushly planted median uses a first-of-its-kind "spot" irrigation system. Additional plantings on both sides of the parkway provide the motorist with a pleasant scene of colorful greenery while preserving the natural expression of the neighborhood.

CATEGORY 1

The Urban Highway

State and Local Projects

AWARD OF MERIT

TOWN OF WINDSOR

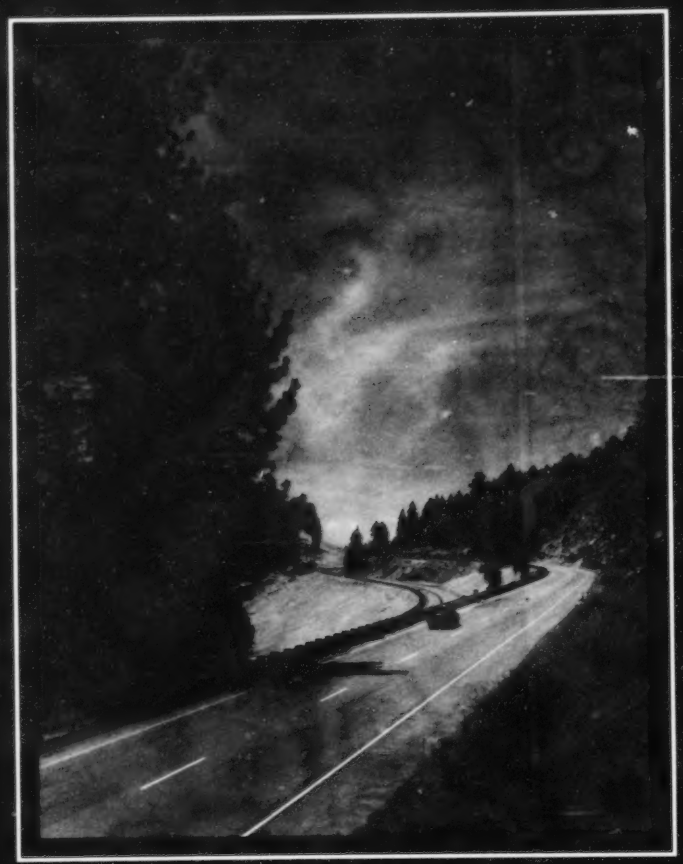
CONNECTICUT DEPARTMENT OF TRANSPORTATION

Preservation of the town green and safe pedestrian movement were major concerns of the residents and officials of Windsor, Connecticut, when the downtown roadway system needed to be reconstructed to improve traffic flow. Local businesses were involved in the early design stages so that their needs would also be met. Underground utilities, landscaping, and selective placement of street and pedestrian lighting complement the green and retain the historical character of the community.

CATEGORY 1

The Urban Highway

State and Local Projects



Another view of Route 395 in California.

AWARD OF EXCELLENCE

CALIFORNIA DEPARTMENT OF TRANSPORTATION

SPECIFIC CRITERIA:

- Design, Alignment and Location
- Cross Section
- Preservation of Natural Areas
- Reestablishment of Natural Areas

The upgrading from a 2-lane to a 4-lane divided highway of a 3-mile segment of Route 395, located in the Inyo National Forest, California, called for the utmost consideration of the environment. Environmental impact was minimized with a number of special features, including revegetation of slopes with native brush and wildflowers, innovative fish baffles in a culvert for a nearby creek, and construction of variable-width natural medians.

CATEGORY 2

The Rural Highway

State and Local Projects

AWARD OF MERIT

SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

Originally constructed in the 1920's and 30's, US-16, a Federal-aid highway located in South Dakota, winds through rugged terrain in the Black Hills. Reconstruction added 10-foot shoulders and regraded curves and hills to enable the speed limit to be increased to 50 mph and improve sight distance. The improvements facilitated the traffic flow and lowered the accident rate.

AWARD OF MERIT

ILLINOIS DEPARTMENT OF TRANSPORTATION

Route 71, in north central Illinois, winds through Starved Rock State Park, a scenic area of sandstone canyons and forested river bluffs, rich in archeological and historical significance. The challenge for designers was to provide for major reconstruction of the roadway while preserving the surrounding terrain. In place of environmentally disruptive slope widening, the roadway cross section was lowered to provide sufficient width within the existing embankment for new pavement and drainage containment structures.

CATEGORY 2

The Rural Highway

State and Local Projects

AWARD OF MERIT

NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION

Thorough and friendly cooperation of the New Hampshire Department of Transportation, New Ipswich Village landowners, utility companies, and contractors resulted in the improvement of a road segment known as "Town Hill." A sidewalk provides a safe and pleasant pathway for pedestrians, and granite retaining walls help save the trees while blending in with historic homes and stone walls along the way.

CATEGORY 2

The Rural Highway

State and Local Projects

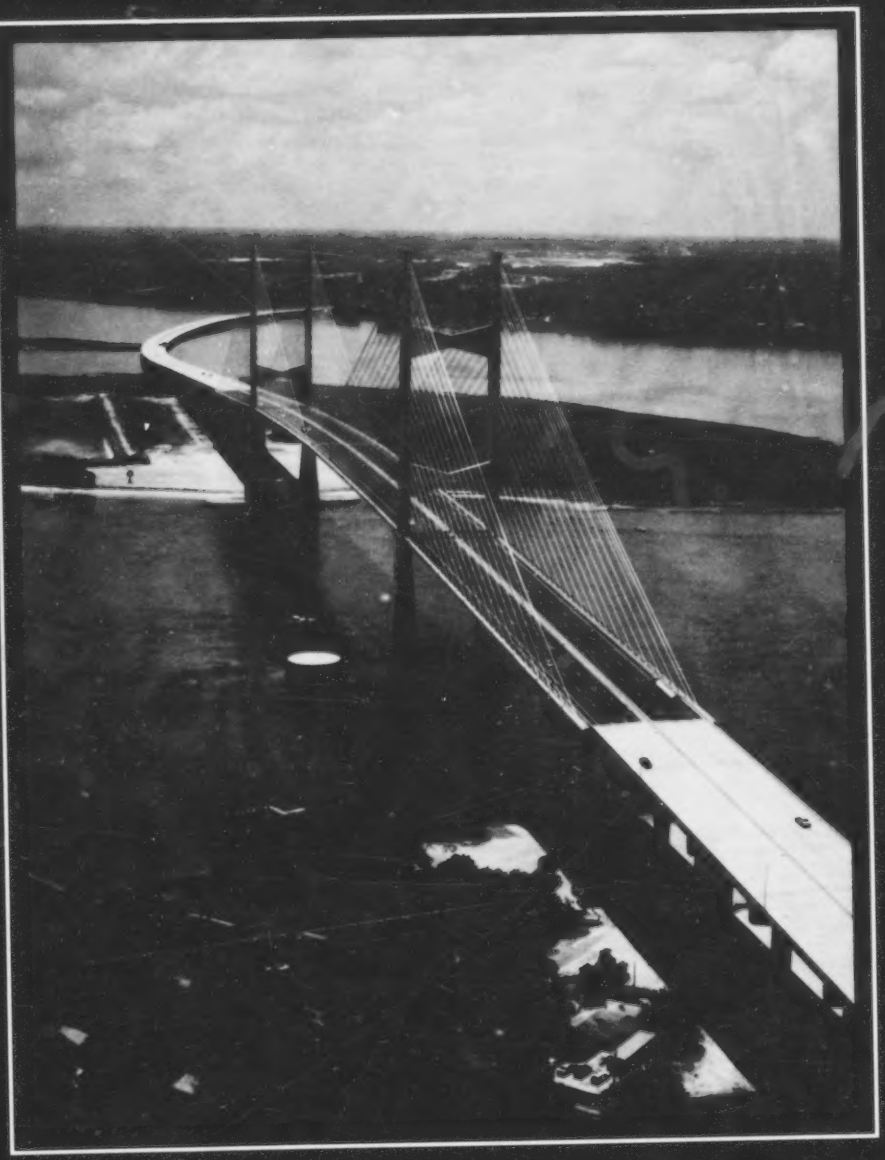
A night view of the Dame Point Bridge in Jacksonville, Florida.

AWARD OF EXCELLENCE

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
JACKSONVILLE TRANSPORTATION AUTHORITY

SPECIFIC CRITERIA:

- Innovative Structural Design
- Selection of Structural Configuration and Materials
- Visual Impact



The Dame Point Bridge, centerpiece of the Dame Point Expressway, completes a major link in the eastern half of Jacksonville, Florida's I-295 beltway. The award winning bridge has a 1300-foot center span, making it the longest concrete cable-stayed span in the western hemisphere and the second longest in the world.

CATEGORY 3A

Major Highway Structures Over $10 Million

AWARD OF MERIT

ARIZONA DEPARTMENT OF TRANSPORTATION

The multi-level "stack" interchange between I-10 and I-17 in Phoenix, Arizona, provides an efficient, visually pleasing facility that will meet the transportation needs of the community for many years. Impact on traffic was held to a minimum by keeping at least two lanes open at all times, except for short periods of nighttime closure to lift and place superstructure girders over the active roadway.

CATEGORY 3A

Major Highway Structures Over $10 Million

AWARD OF EXCELLENCE

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

SPECIFIC CRITERIA:

- Innovative Structural Design
- Selection of Structural Configuration and Materials
- Visual Impact

The challenge facing designers in Olympia, Washington, was to replace existing vertical piers of the Capitol Boulevard Bridge, to allow for the widening of I-5, located 70 feet below, while keeping both I-5 and Capitol Boulevard open to traffic. Two steel arches were constructed off-site, and the transfer of the dead load from the bridge's piers to the new arches was accomplished by placing permanent steel jacking beams between existing girders, enabling the structure to be lifted.

CATEGORY 3B

Major Highway Structures Under $10 Million

AWARD OF MERIT

CALIFORNIA DEPARTMENT OF TRANSPORTATION

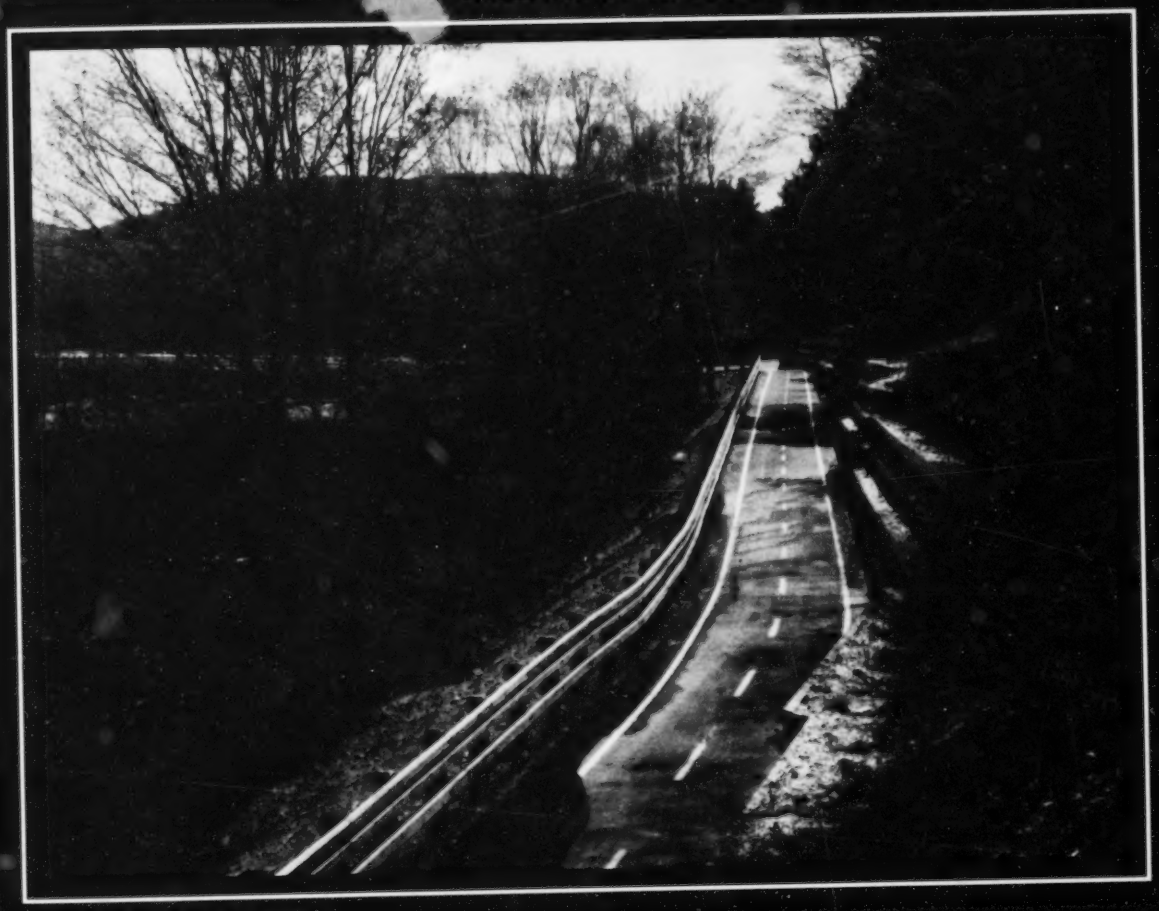
Viewing the South Fork Trinity River Bridge from upstream or downstream shows how well the bridge fits into the surrounding canyon. The structure was designed with consideration for adjacent environmentally sensitive areas, including ancient Indian village grounds.

CATEGORY 3B

Major Highway Structures Under $10 Million

AWARD OF EXCELLENCE

NEW YORK STATE DEPARTMENT OF TRANSPORTATION



SPECIFIC CRITERIA:

- Site Development
- Integration with Highway System
- Signing and Graphics
- Innovative Design

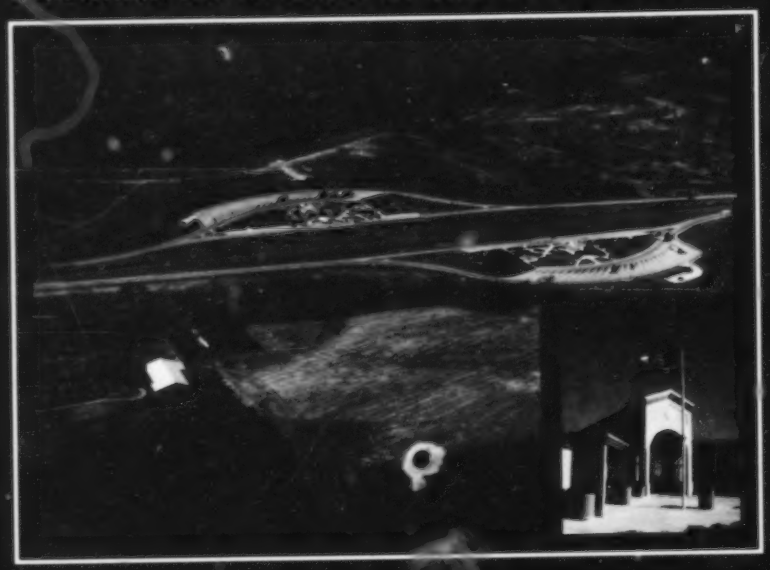
The bicycle trail around Red House Lake, in Allegany State Park, in western New York State, was designed to fit into the natural areas of the park and reflect existing design elements, such as the stone work done by the Conservation Corps in the 1920's. A covered bridge for bikers was created over Red House Creek, and the trail is so attractive that people in wheelchairs have been enjoying it as well.

CATEGORY 4

Highway Support Facilities

AWARD OF MERIT

WISCONSIN DEPARTMENT OF TRANSPORTATION



Care for the environment was balanced with style and traveling convenience in two new Dunn County, Wisconsin, rest areas. Pre-design tourist surveys resulted in drive-up phones, weather and road reports, and sheltered picnic areas. The classical-style brick and stone buildings have entryway clerestories providing light-filled, pleasant interiors. Plantings of prairie grasses and flowering plants preserve the natural setting which requires little maintenance.

AWARD OF MERIT

BUCHART-HORN, INC.

Great care went into the design of the Gateway Park, constructed over I-66 in Rosslyn, Virginia, in order to provide pedestrians with green spaces, fountains, benches, skywalks, lighting, tunnels, and multi-level spaces to enjoy any time of day. The park's design is visually striking and serves as a physical buffer to minimize the highway's impact in this densely populated area.

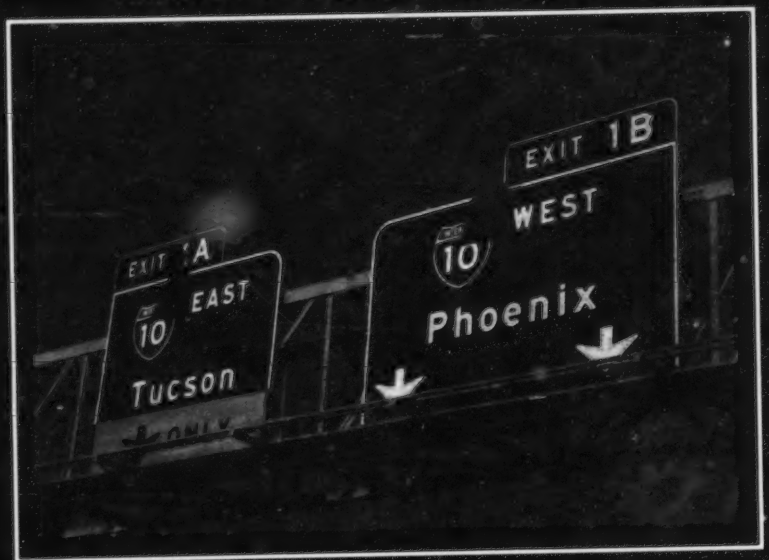
CATEGORY 4

Highway Support Facilities

AWARD OF MERIT

ARIZONA DEPARTMENT OF TRANSPORTATION

For many years, the Arizona Department of Transportation (ADOT) used bottom-mounted fluorescent fixtures to light overhead signs. In April 1989, ADOT completed five statewide conversion projects to top-mounted high pressure sodium (HPS) fixtures, with an anticipated 25-year savings of $11.8 million. The new top-mounted fixtures provide lighting over a wider area, permitting one HPS fixture to replace 2-3 fluorescent fixtures. The HPS fixtures also reduce uplight pollution, a benefit for Arizona's amateur and professional sky-watchers.



SPECIFIC CRITERIA:

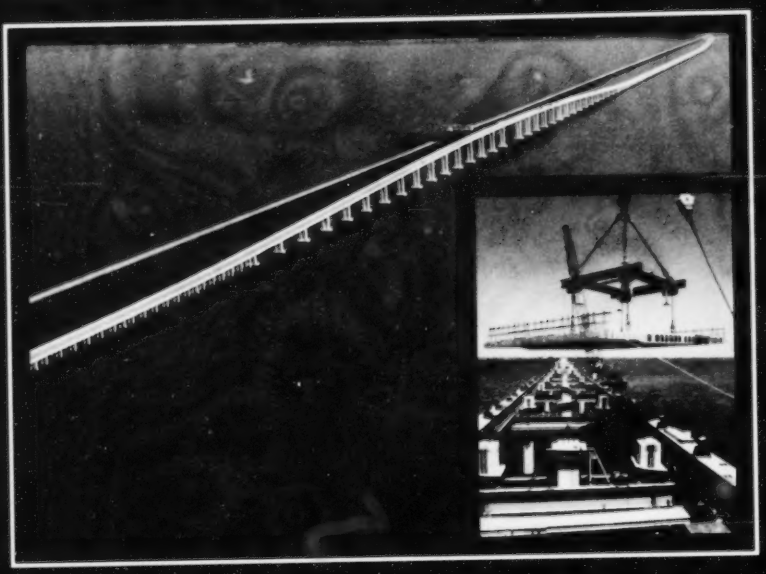
- Overall Application to Other Projects over a Broader Range
- Savings
- Overall Appearance

CATEGORY 5

Cost Saving Innovations

AWARD OF MERIT

F & M ENGINEERS, INC.
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION



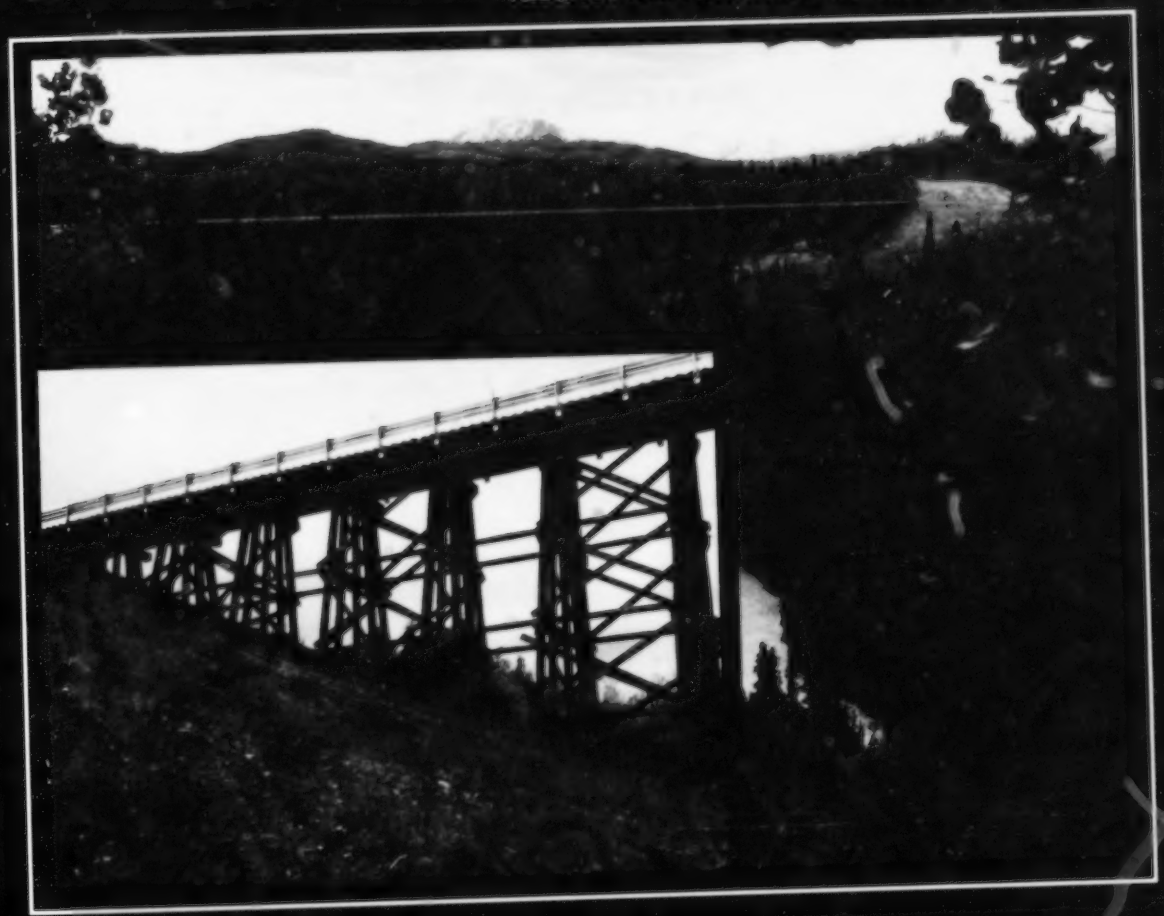
The 3.5-mile long Albemarle Sound Bridge in North Carolina represents a significant breakthrough in innovative bridge design. For the first time in America, a precast concrete flat slab design for 40-foot slabs was used successfully. The slabs were precast at a casting yard near the bridge site. A typical 260-foot unit of bridge with precast slabs was completed every three days.

CATEGORY 5

Cost Saving Innovations

AWARD OF EXCELLENCE

ALASKA DEPARTMENT OF TRANSPORTATION



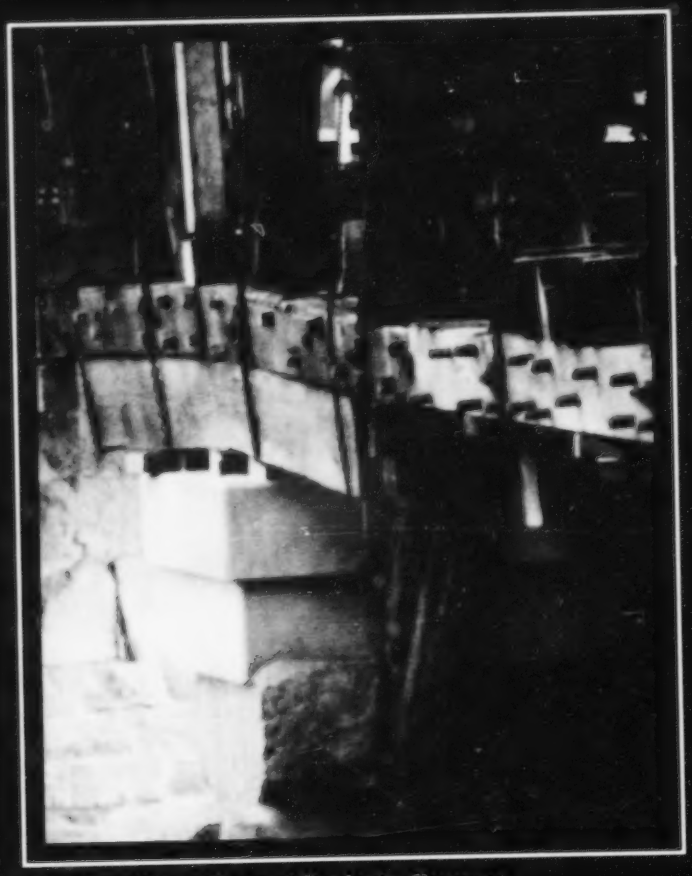
SPECIFIC CRITERIA:

- Preserving Historical or Archeological Sites
- Restoration
- Enhancement Efforts

The Kuskulana River Bridge was constructed in 1910 as part of a 196-mile railroad link connecting the copper mining center of McCarthy, Alaska, with the tidewater port of Cordova. When mining operations ceased in the late 1930's, the railroad bridges were converted to vehicular use by removing the rails and placing planks on the ties. A reconstruction project provided a new heavy timber deck simulating railroad ties and approach spans built in the configuration of the original timber railroad trestles. The project restored vehicular access while recalling the area's colorful railroad history.

CATEGORY 6

Historic Preservation and/or Cultural Enhancement



The Saco River Covered Bridge in Conway, New Hampshire, prior to restoration.

AWARD OF EXCELLENCE

NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION

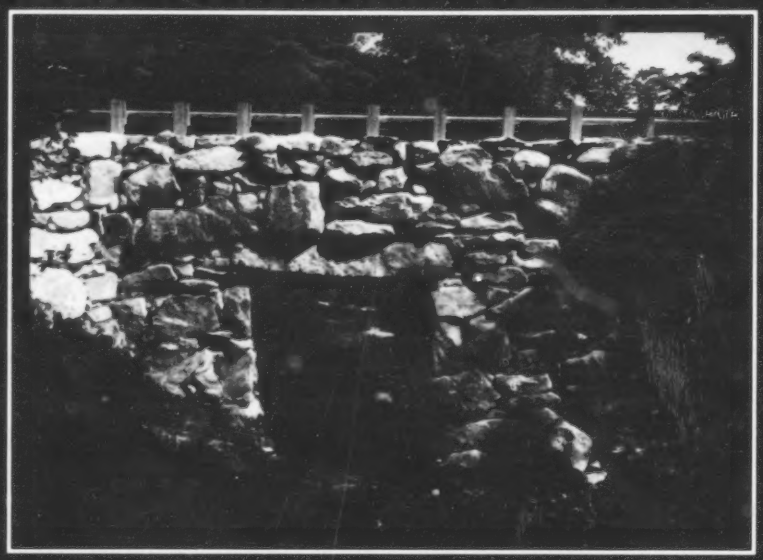
The Saco River Covered Bridge, built in 1890, in Conway, New Hampshire, is a 225-foot, 2-span, paddleford truss structure. Restoring the bridge took some "Yankee ingenuity" to design a way of supporting the structure and rebuild it from eye-level down. A temporary bridge was shoehorned into the old structure to take the weight during the restoration.

CATEGORY 6

Historic Preservation and/or Cultural Enhancement

AWARD OF MERIT

CONNECTICUT DEPARTMENT OF TRANSPORTATION



The rehabilitation of the stone-and-mortar Colebrook Bridge, constructed in 1784, to accommodate the widening of State Route 183 over Center Brook, was accomplished without changing the historical character and charm of the area. Preserving the old stonework from the original structure and carefully placing it to cover the new structure retained the bridge's previous appearance.

CATEGORY 6

Historic Preservation and/or Cultural Enhancement

AWARD OF MERIT

MISSOURI HIGHWAY AND TRANSPORTATION DEPARTMENT

Shepherd of the Hills, Table Rock Lake, and Silver Dollar City are just a few of many tourist attractions — some on the National Register of Historic Places — served by Route 76 in Stone County, Missouri. Traffic volume during tourist season increases to 12,000 vehicles per day. To assist traffic flow, designers provided for construction of 10-foot-wide shoulders which are striped to three-lane sections where left turn lanes are needed. The new roadway has improved traffic congestion and made traveling a more pleasurable experience.

SPECIFIC CRITERIA:

- Improved or Innovative Procedure, Equipment or Material
- Wide Applicability
- Extension of Pavement Life
- Low Life-Cycle Cost
- Improved Pavement Performance

CATEGORY 7

Pavement Rehabilitation/Reconstruction

AWARD OF MERIT

IOWA DEPARTMENT OF TRANSPORTATION

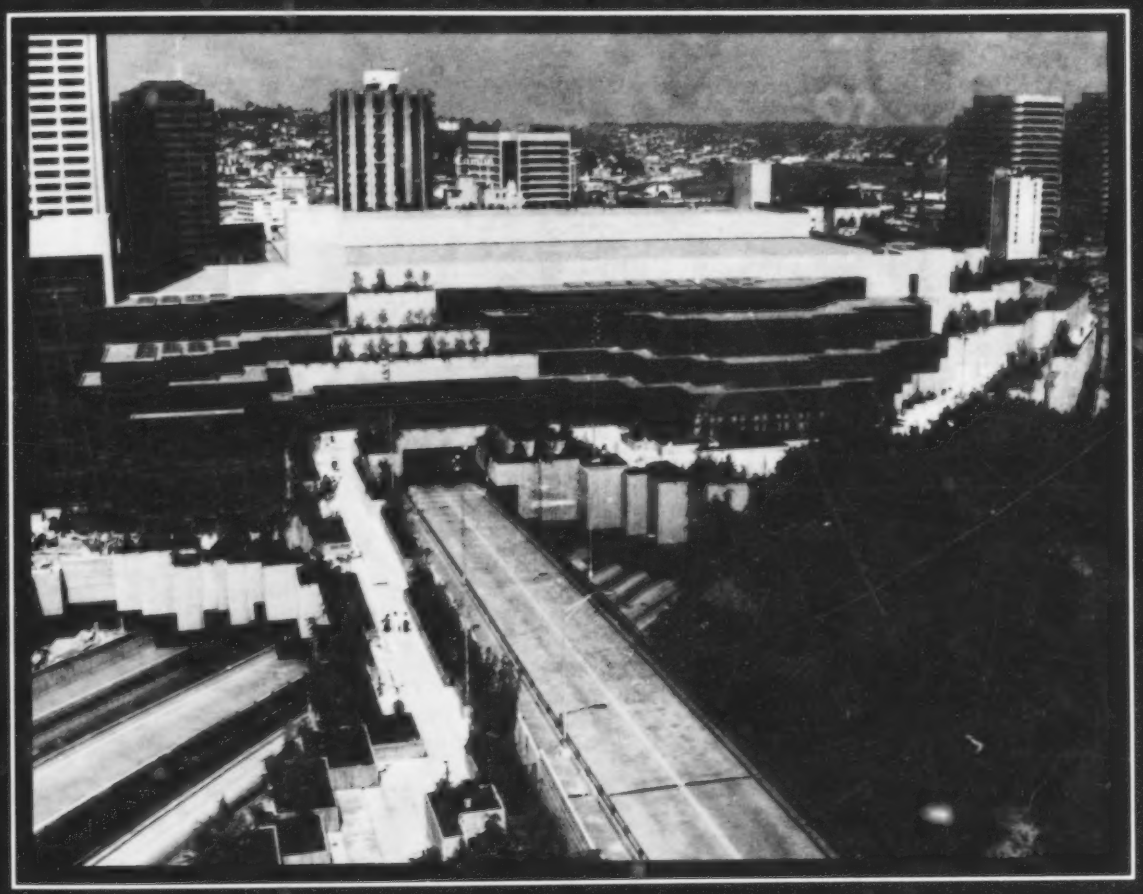
The volume of daily traffic was so high in this segment of Route 100 in Cedar Rapids, Iowa, that closing the intersections or entrances for even one day was impossible. The solution was the use of a concept called accelerated pavement opening to reconstruct two lanes and upgrade intersections. This process allowed the new pavement to be opened to traffic in a short time by using a special concrete mixture and insulation blankets for quick curing. Intersections were reopened within 12 hours, and new mainline concrete paving was reopened within 3 days.

CATEGORY 7

Pavement Rehabilitation/Reconstruction

AWARD OF EXCELLENCE

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION



SPECIFIC CRITERIA:

- Land-Use Compatibility
- Overall Appearance
- Site Development
- Design

When I-5 was first built, it virtually split Seattle, Washington, in two. The Washington State Convention and Trade Center, along with adjoining Freeway Park, goes a long way in bridging this barrier by spanning the airspace over the freeway. In addition, the complex now provides around-the-clock access for the handicapped from adjacent housing projects through the center to the Seattle shopping district.

CATEGORY 8

Public/Private Participation

AWARD OF MERIT

CITY OF PHILADELPHIA STREETS DEPARTMENT

The business community joined with the city of Philadelphia to explore ways to improve Market Street as a world class transportation/commercial boulevard. Reconstruction resulted in widened sidewalks, restructured traffic flow, improved transit loading/unloading operations, decorative lighting with flower boxes, bus shelters, benches, and patterned sidewalks. The business community formed an association responsible for the maintenance of sidewalks, curbs, trees, and street furniture.

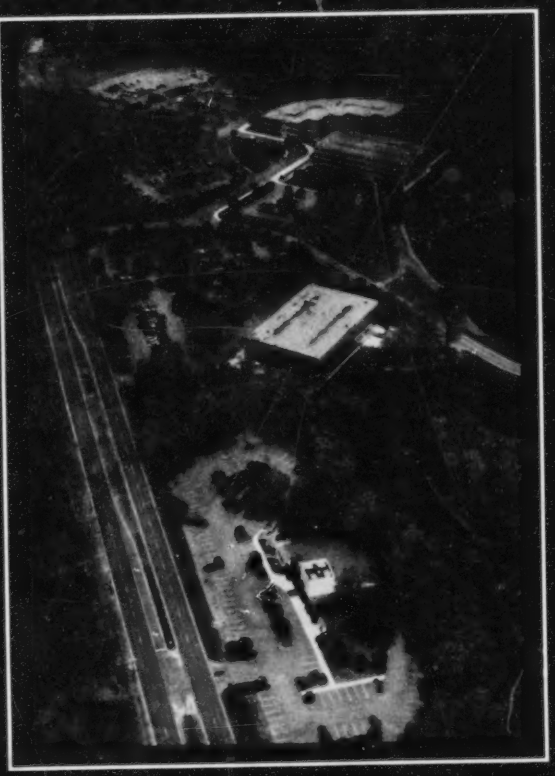
CATEGORY 8

Public/Private Participation

AWARD OF MERIT

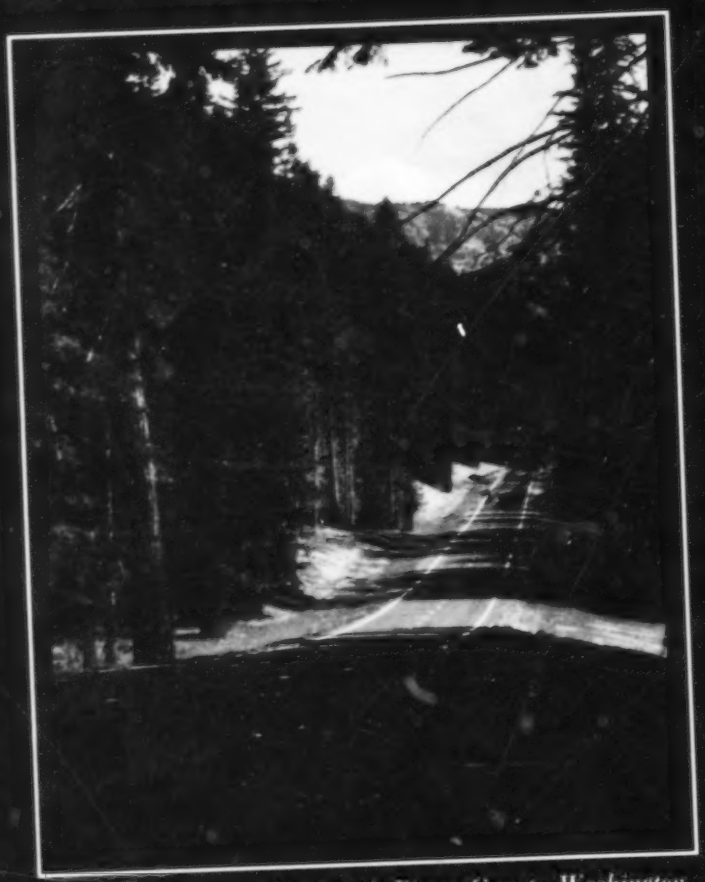
CONNECTICUT DEPARTMENT OF TRANSPORTATION

The purpose of the reconstructing, widening, and realigning of Routes 187 and 189 in the towns of Bloomfield and Windsor, Connecticut, was to improve traffic flow and vehicular safety in a rapidly expanding industrial area. The new roadway system provides easy access to various office complexes without affecting existing trees, waterways, and ponds — thus filling the needs of developers and Mother Nature.



CATEGORY 8

Public/Private Participation



Mountain scenery on Route 410, Pierce County, Washington.

AWARD OF EXCELLENCE

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

SPECIFIC CRITERIA:

- Design
- Alignment and Location
- Cross Section
- Preservation of Natural Areas
- Reestablishment of Natural Vegetation

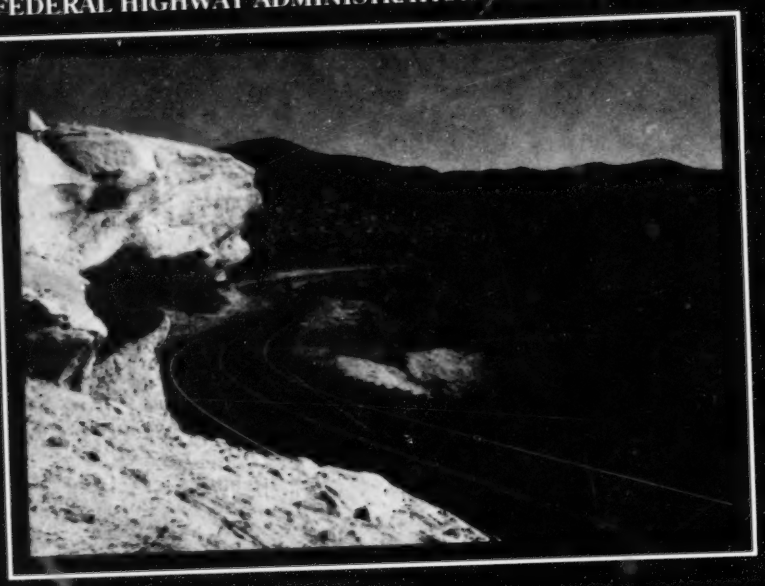
State Route 410 in Washington State begins at a high mountain pass and traverses through some of the best mountain scenery in the State. Care was taken to blend the highway into the surrounding terrain by varying the edges of tree lines, creating rock outcroppings similar to natural rock formations, and contouring slopes to give the ground a more natural flow.

CATEGORY 9

Highway Improvements of Federally Owned Lands

AWARD OF MERIT

FEDERAL HIGHWAY ADMINISTRATION—CENTRAL FEDERAL LANDS HIGHWAY DIVISION



The reconstruction of the 50-year-old Hogan Pass Road in Utah required a team approach melding the efforts of engineers, landscape architects, biologists, historians, foresters, wildlife specialists, and the business community. The reconstructed highway provides access to two national forests, two national parks, and significant archeological sites.

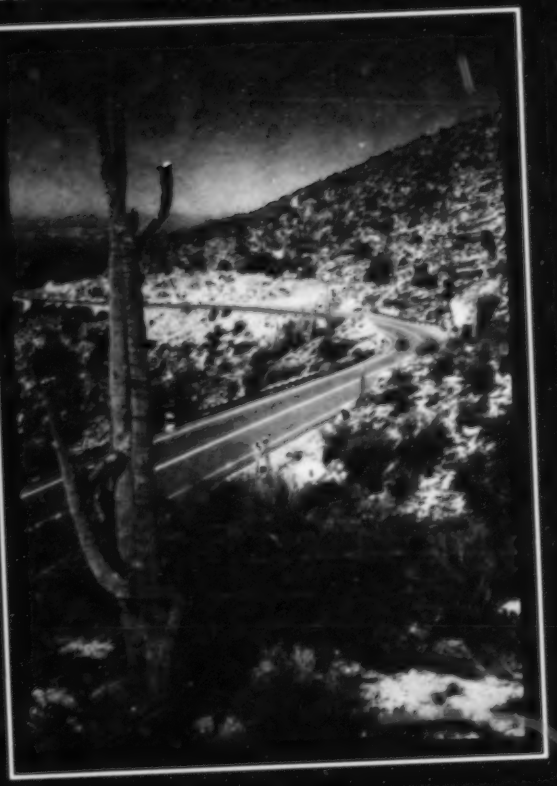
CATEGORY 9

Highway Improvements of Federally Owned Lands

AWARD OF MERIT

FEDERAL HIGHWAY ADMINISTRATION—CENTRAL FEDERAL LANDS HIGHWAY DIVISION

When it came time to widen a 27-mile section of the General Hitchcock Highway, outside Tucson, Arizona, the project required innovative highway design and construction approaches to prevent damage to the environment, ecosystem, and fragile desert vegetation. Special blasting techniques were used to minimize scarring of the mountainside. Cactus plants were carefully removed before construction, placed in a project nursery, and replaced when the construction was finished.



CATEGORY 9

Highway Improvements of Federally Owned Lands

AWARD OF MERIT

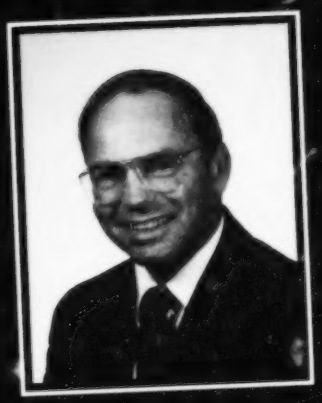
NATIONAL PARK SERVICE
FEDERAL HIGHWAY ADMINISTRATION—EASTERN FEDERAL LANDS HIGHWAY DIVISION

A challenge faced the designers of a rehabilitation project of the famed Skyline Drive in Shenandoah National Park, Virginia. The original construction included over 40 miles of stone walls as roadside barriers. Built from native stone, the walls did not meet current roadside barrier standards. Special stone masonry walls with a concrete core were developed that met both construction and esthetic requirements.

CATEGORY 9

Highway Improvements of Federally Owned Lands

JUDGES



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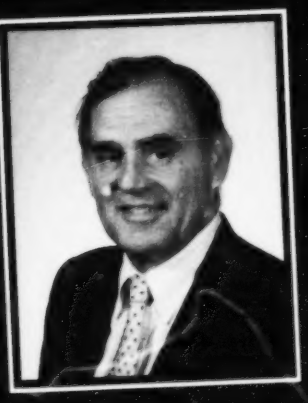
Tuscaloosa, Alabama



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